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Words Matter: Economics & A Literal Reading of *Mars*, *American Seating*, and *Monsanto-Ralph*

Potholes along the road to economic rationality?

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There have been several recent patent damages decisions that relate to the issue of acceptable non-infringing alternatives. Some rulings have language that potentially constrains which alternatives are properly considered when evaluating damages, while others have language that potentially constrains the role those alternatives play in determining reasonable royalties. More precisely, in *Mars*[2] and *American Seating*,[3] the CAFC stated that an alternative should not be considered "available"—in the *Grain Processing*[4] sense—unless it is as good as the accused product. That is, the alternative must be acceptable to *all* purchasers and/or must have all of the important features of the accused product.[5] In *Monsanto-Ralph*[6] and *Mars*, the CAFC rejected the notion that a reasonable royalty award should be capped by the cost to the infringer of turning to an available, non-infringing alternative to the patented technology.[7] Because of their sometimes straightforward and plain language, these cases threaten to create potholes along the road to rational and appropriate damages awards. The time is ripe, therefore, to re-state and reinforce proper economic interpretation of these cases.

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2 *Mars, Incorporated, and Mars Electronics International, Inc., and M&M/Mars Incorporated v. Coin Acceptors, Inc.*, 527 F.3d 1359 (Fed.Cir. 2008). ("*Mars*")

3 *American Seating Company v. USSC Group, Inc.*, 514 F.3d 1262 (January 2008). ("*American Seating*")

4 *Grain Processing v. American Maize-Products Company*, 185 F.3d 1341 (August 1999). ("*Grain Processing*")

5 See *American Seating,* 514 F.3d at 1270.

6 *Monsanto Company v. Kem L. Ralph*, 382 F.3d 1374 (September 2004). ("*Monsanto-Ralph*")

7 See *Mars,* 527 F.3d at 1372-1373.

In our view, patent damages analyses as a general matter should consider the range of economic alternatives that would have been available to an accused infringer *and* any and all costs associated with them. Once determined to be "available," the acceptability of those alternatives to consumers is not amenable to black-or-white, all-or-nothing decision rules. Indeed, this is an empirical, economic question. We therefore caution against any interpretation of these recent cases that might eliminate certain alternatives to which the accused infringer might have turned on the grounds they are not technically similar or not acceptable to *all* consumers who had purchased the accused product. We also caution against any interpretation of these recent cases that makes irrelevant the full economic cost of turning to these alternatives.

We discuss the economic logic of these recent rulings with respect to two questions:

(1) Can an available alternative be defined as one that does not have all of the important features of the patented product (and/or would not be acceptable to *all* of the purchasers of the accused product)?

(2) Should the cost of turning to an alternative represent a ceiling for the amount an infringer/licensee would pay for a license to the patented technology?

As we describe below, the answer to both questions ought to be a resounding ***yes***.[8]

A damage expert's analysis of the hypothetical negotiation should consider *economic* alternatives—*i.e.*, not just technically similar alternatives—and assess the full, *economic* cost of turning to them. A careful, precise reading of the district court and CAFC decisions in *Mars* and *Monsanto-Ralph* reveals that, despite their sometimes striking language, each decision supports outcomes that are consistent with economic principles. But, the converse is also true: unless the terms are carefully defined, those cases may be used to support damages rulings that are economically unsound.[9]

[8] As we explain later, the full economic cost of turning to the next-best alternative should place a ceiling on the reasonable royalty. An exception is worth noting. It is possible that the most the licensee would have been willing to pay in that negotiation is less than the least that the licensor would have been willing to accept (which we describe below). This may happen, for example, when some sales (at a relatively high margin) are at risk for the licensor, while the license would enable relatively few, low-margin sales for the licensee. When this occurs, there is no *ex ante* royalty to which both sides would agree, and the hypothetical negotiation could never result in a royalty agreement. It follows, then, that any royalty "sufficient to compensate" the licensor would necessarily exceed the most that the licensee would be willing to pay.

[9] As we discuss later, the district court's recent ruling in *Parker-Hannifin Corporation et al. v. Champion Laboratories, Inc*., 2008 WL 3166318 (N.D.Ohio, August 2008), ("*Parker-Hannifin*") is one illustration of what may be, in our view, an insufficiently careful citation to *Mars*.

Guiding Economic Principles: Economic Substitutability

Our first question: For determining whether the patent holder is due lost profits on *all* infringing sales, can an available alternative be defined as "acceptable" if it does not have all of the patented features (and/or is not acceptable to *all* consumers who bought the accused product)? Again, the answer should be a resounding ***yes***. As we next explain, the guiding principle for assessing the value of any technology is *economic* substitutability.

Consider three important cases relating to lost profit awards in patent cases: *Panduit*,[10] *State Industries*,[11] and *Grain Processing*. In 1978, *Panduit* provided the four-part test by which a patent owner could prove entitlement to lost profits. Under that test, the patent owner could claim lost profits if it could show (a) demand for the patented product; (b) an absence of acceptable non-infringing alternatives; (c) that it had the marketing and manufacturing capability to make the accused sales; and (d) the amount of damage that it suffered. The second factor was, for a time, interpreted as an all-or-nothing test: if there existed non-infringing alternatives then the patent owner was entitled to, at best, reasonable royalty damages.

In 1989, the CAFC's *State Industries* decision modified the second *Panduit* factor by recognizing that even if there were non-infringing alternatives to which *some* customers might turn, the patent owner may still be entitled to lost profits. More precisely, to the extent that competitors other than the patent owner may have been likely in the but-for market to capture some of the accused sales, despite their products not using the *patented* technology, then those sales would not be captured by the patent owner. This makes sound economic sense; in most markets, products that compete for consumer patronage need not have all of the same features or underlying technology to be acceptable to some consumers at some price. Some customers that purchased the accused products in the real world may well have turned, to some extent, to those third-party suppliers in the but-for market. Accordingly, crediting those competitors with their market shares embraced the principle of *economic* substitutability.

Ten years later, in 1999, the CAFC's *Grain Processing* decision further embraced this economic concept by explicitly recognizing that even the accused infringer could perhaps capture some share of its accused sales by turning to its next-best, non-infringing alternative—even if that alternative was not yet on the market at the time of infringement:[12]

[10] *Panduit Corp. v. Stahlin Bros. Fibre Works, Inc.,* 575 F.2d 1152 (6th Cir. 1978). ("*Panduit*")

[11] *State Industries, Inc. v. Mor-Flo Industries, Inc. and American Appliance Mfg. Corp.,* 883 F.2d 1573 (Fed. Cir. 1989). ("*State Industries*")

[12] *Grain Processing,* 185 F.3d 1341 at 1350-1351. Emphasis Added.

> [A] fair and accurate reconstruction of the "but for" market also must take into account, where relevant, alternative actions the infringer foreseeably would have undertaken had he not infringed. Without the infringing product, a rational would-be infringer is likely to offer an acceptable noninfringing alternative, if available, to compete with the patent owner rather than leave the market altogether. **The competitor in the "but for" marketplace is hardly likely to surrender its complete market share when faced with a patent, if it can compete in some other lawful manner.** Moreover, only by comparing the patented invention to its next-best available alternative(s)—regardless of whether the alternative(s) were actually produced and sold during the infringement—can the court discern the market value of the patent owner's exclusive right, and therefore his expected profit or reward, had the infringer's activities not prevented him from taking full economic advantage of this right… Thus, **an accurate reconstruction of the hypothetical "but for" market takes into account any alternatives available to the infringer.** [Emphasis Added.]

As an economic matter, this decision got it right: the economic value of an invention to the infringer depends importantly on the extent to which it could retain at least some fraction of its sales by turning to its next-best available course of action.

However, in *American Seating*, the District Court's jury instructions with respect to damages stated:[13]

> In order to be an acceptable substitute, the product **must have the advantages of the patented invention that were important to customers.** If, however, the realities of the marketplace are that competitors other than American Seating would likely have captured some or all of the sales made by USSC, **even despite a difference in the products**, then American Seating is not entitled to lost profits on those sales. …
>
> In order to assess whether there is an absence of acceptable non-infringing substitutes, you must consider whether non-infringing substitutes existed that were acceptable to the *specific* purchasers of the infringing products, not 'purchasers' generally. The test is whether purchasers of USSC's VPro-I were motivated to make their purchase by features available only from USSC's VPro-I (and not the patented product). If so, **non-infringing products without those features would not be 'acceptable noninfringing substitutes,'** even if they otherwise competed in the marketplace with the patented and USSC's products. [Emphasis Added.]

[13] *American Seating Company v. USSC Group, Inc.*, Amended Opinion and Order Granting in Part and Denying in Part Defendant's Motion for Judgment as a Matter of Law, New Trial or Remittitur of the Jury Verdict, 2006 WL 2472196 (W.D.Mich., August 2006) at 7. Emphasis Added.

These jury instructions might be interpreted to say that "acceptability" is a "black-or-white" proposition; if a product has "the" features important to consumers, then it is acceptable; if it does not have those features, then it is not acceptable. As an economic matter, that makes little, if any, sense. For example, following *State Industries*, there is no dispute that third-party suppliers, despite offering somewhat different products, are assumedly able to capture some share of the accused sales. This is because, in the real-world, the market assumedly includes a number of suppliers, each selling products with different features and prices. Accordingly, whatever differences exist among products, they are assumedly important enough to cause consumers *not* to buy the patent owner's product. Thus, a non-infringing alternative that differs from the patented/accused good may well be *somewhat* acceptable—*i.e.*, allowing the infringer to retain some portion of its accused sales. As an economic matter, therefore, the jury instructions may be interpreted as instructing the jury to give too little weight to the infringer's ability to retain its accused sales.

In its final ruling on this case, the CAFC affirmed, and explained:[14]

> USSC argues that … Grain Processing created a bright-line rule that the presence of a non-infringing replacement product precludes lost profit damages in all circumstances. However, USSC overlooks that Grain Processing instructs that a non-infringing replacement product is not considered a substitute unless it is "**acceptable to all purchasers of the infringing product.**" Id. at 1343. In other words, buyers must view the substitute as equivalent to the patented device. See id. at 1347. [Emphasis Added.]

As an economic matter, *Grain Processing* did *not* instruct that the alternative must be acceptable to all purchasers, nor that it must have all of the advantages of the patented invention. Rather, after *Grain Processing*, one should account for the extent to which an accused infringer could have retained *some portion* of its accused sales by turning to its next-best available, alternative course of action. If the alternative product was somehow less attractive—*e.g.*, illustrated by fewer customers being willing to purchase it, and/or by customers being willing to purchase it only if it were lower-priced than the accused product, and/or because it would be introduced to market at a later date than were the accused products—then, as an economic matter, that does *not* invalidate it as its next-best course of action. Indeed, neither availability nor acceptability are black-or-white concepts requiring an all-or-nothing decision rule. To the contrary, the concept of economic substitutability readily permits one to assess (and, often, to quantify) the extent to which the infringer could retain *some* of its accused sales—perhaps albeit at a lower profit rate—even if the alternative is missing some of the important features or underlying technology that had been present in the accused product.

[14] *American Seating*, 514 F.3d at 1270. Emphasis Added.

While *American Seating* relates to lost profit claims, we note that it also has important implications for reasonable royalty determination. When two parties negotiate a license to a technology, both sides consider *all* alternatives to agreeing to a license; restricting the alternatives only to substitutes with the same *technical* features—*i.e.*, "acceptable to *all* purchasers of the infringing product"—is not likely to be consistent with rational economic behavior. What matters in describing this but-for market is the extent to which there are available, alternative non-infringing *economic* substitutes, which need not be technically similar nor acceptable to *all* consumers of the accused product.[15] As we next explain, if the next-best option for the putative licensee involves introducing a less popular product, then the full economic cost of turning to that option—which would include profits forgone because it will make fewer sales and/or sell at a lower margin—will accurately measure the value of the license to the licensee. This, in turn, will influence the outcome of the hypothetical negotiation.

The Hypothetical Negotiation Construct

Our second question: Should the cost to the infringer of turning to its next-best, available alternative technology serve as a ceiling to the damage award? Again, typically the answer is a resounding ***yes***. As we next explain, however, this conclusion depends on how carefully one defines "cost."

In the now infamous *Georgia-Pacific*[16] ruling, the Southern District of New York ruled that a reasonable royalty is to be determined by the outcome of a hypothetical negotiation between the patent holder and the accused infringer on the eve of first infringement, assuming both parties know that the patent is valid and, if used without a license, would be infringed. As an economic matter, that negotiation should simulate a real-world negotiation between the parties.[17] A rational, profit-maximizing putative licensee would enter the negotiation hoping to pay as little as possible, but recognizing that, absent a license, it could not go forward with its infringing actions and would thus lose all profits associated with them. To the extent it could avoid losing any *portion* of those profits, as the court recognized in *Grain Processing*, it could reasonably be expected to attempt to do so by turning to some alternative, profitable activity (even if, contrary to *American Seating*, that alternative was somehow less than perfect). The difference between the amount of profit that could be earned with a license and that which could be earned without it precisely defines the (appropriately incremental) value to the licensee of the technology at issue.[18] This profit difference therefore determines the most it would willingly pay for a license. To measure the profit difference, if any, between these alternative courses of action, the licensee should consider several factors

15 That next-best option for the licensee may well be to shut down operations or reassign its capital to an unrelated line of business. This option may be an *economic alternative* that the licensee would consider within the hypothetical negotiation.

16 *Georgia-Pacific Corp. v. US Plywood Corp*., 318 F. Supp. 1116, 1120 (SDNY 1970), *modified on other grounds*, 446 F. 2d 295 (2d Cir. 1971), cert. denied, 404 US 870 (1971). ("*Georgia-Pacific*")

17 See, for example, Gregory K. Leonard and Lauren J. Stiroh, "*A Practical Guide to Damages*," in *Economic Approaches to Intellectual Property*, Gregory K. Leonard and Lauren J. Stiroh, eds., NERA Economic Consulting, 2005.

18 With a license, the licensee can earn (a) whatever profits it makes from practicing the patent minus (b) its royalty obligations. Without a license, the licensee can only earn (c) the profits from its next-best non-infringing alternative. If the royalty obligations (b) exceed the difference between its two profit streams [(a) minus (c)], then the licensee would earn more by refusing the license and turning to its alternative. If the royalty obligation is less than this amount, taking the license is the best option.

including: (a) the out-of-pocket costs associated with turning to the alternative;[19] (b) the extent to which there would be a delay to market from turning to the alternative and, as a result, certain foregone sales and profits during the intervening implementation period; and (c) the extent to which consumers might view the alternatively designed product as not quite as acceptable, causing at least some of those consumers to turn elsewhere and/or to be willing to stay with the firm only if it were to charge a reduced price. Taken together, these factors permit the putative licensee to measure the full economic cost associated with turning to its next-best available alternative course of action. As an economic matter, no licensee would ever agree to expected royalty payments that exceeded the full economic cost of this alternative. Doing so would be an irrational, non-profit-maximizing decision. Thus, as an economic matter, this cost sets a ceiling on the bargaining range, and thus the reasonable royalty.[20]

The licensor's negotiating position, however, sets a floor for the bargaining range. A rational, profit-maximizing licensor would recognize the potential financial impact of granting a license. In practice, this means the licensor would know *both* the extent to which the license would enable its empowered rival to take business away from it *and* the extent to which that putative licensee could take that business even without a license by turning to its next-best alternative course of action. Thus, the licensor's negotiating position is the mirror-image of the licensee's: it would accept no less than the difference between (a) the profit it would expect to earn in the world in which it does not grant the license and (b) the profit (excluding royalty receipts from the licensee) that it would earn if it granted a license.[21] If it accepted any royalty below that amount, the licensor would be financially worse-off from granting the license.

Any royalty between these two negotiating positions is jointly rational—both parties would expect to gain by agreeing to such royalty terms. Any royalty outside these two bounds is irrational for one of the two parties; it implies that one party would agree to terms that it expected would cause it to lose money relative to other alternatives.

Ultimately, other factors not already accounted for in determining this bargaining range (such as some of those enumerated in the *Georgia-Pacific* decision) may inform where in the range the reasonable royalty should lie. If the reasonable royalty is meant to mimic the result of a real-world negotiation with informed bargainers, these boundaries should not be violated.[22]

[19] Those out-of-pocket costs may reflect, among other things, how well known the technology is—*e.g.*, whether any further research and/or development efforts are required to bring the alternative to market.

[20] See, again, footnote 8.

[21] If it grants a license, the licensor can earn (a) whatever profits it makes from its operations when the licensee practices the patent plus (b) the royalty receipts from the licensee. Without granting the license, the licensee can only earn (c) the profits it earns when the licensee must turn to its next-best non-infringing alternative. For granting a license to be profitable, the licensee's royalty obligations (b) must exceed the difference between these two profit streams [(c) minus (a)].

[22] See, again, footnote 8.

The Economics of *Mars* and *Monsanto-Ralph*

Given this economic context, we next turn to the *Mars* decision, in which the CAFC stated that it is "wrong as a matter of law to claim that reasonable royalty damages are capped at the cost of implementing the cheapest available, acceptable, noninfringing alternative."[23]

In reaching this decision, the court cited to *Monsanto-Ralph*, in which it *rejected* the idea that

> a reasonable royalty deduced through a hypothetical negotiation process can never be set so high that no rational self-interested wealth-maximizing infringer acting ex ante would ever have agreed to it.[24]

However, a careful reading of the *Monsanto-Ralph* decision reveals that it did *not* rule that the (full economic) cost of a non-infringing alternative should not place a ceiling on a reasonable royalty. Rather, the court ruled, in effect, that the circumstances surrounding the real-world license fee for the technology at issue, that was argued by Ralph to be an established royalty, was *not* directly comparable to the hypothetical negotiation.[25]

As an economic matter, the difference between the use allowed by Monsanto's normal annual license fee and Ralph's infringing use is vital. While Ralph argued that "no sane farmer would ever negotiate a royalty in excess of his anticipated profits,"[26] the CAFC rightly points out that Monsanto never granted a license for the use that Ralph made. In fact, Ralph's actual use of the seed could generate substantially greater profits than those derived from a one-time use (the "anticipated profits" cited by Ralph). The hypothetical negotiation construct is meant to model a license for the patented technology, *as used by the infringer*. If, then, the hypothetical negotiation is for unlimited, perpetual use of the seed, as Ralph used it, then it follows that the real-world license fee is neither a good benchmark, nor a non-infringing alternative to Ralph's accused use. Indeed, as Ralph's use would have meant it would not need to obtain any future annual licenses, in the hypothetical negotiation Monsanto would have rightly demanded (as a floor to the hypothetical negotiation) a lump-sum payment equal to the expected value of its lost future annual license fees from Ralph (and any other fees it might lose from farmers acquiring seed through Ralph). Similarly, the proper non-infringing alternative would be based on perpetual, unlimited use (and thus not the real-world license fee). Viewed this way, it is unsurprising that the reasonable royalty would exceed (perhaps substantially) the prior agreed-upon license.

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[23] *Mars*, 527 F.3d at 1373. In *State Industries, Inc. v. Mor-Flo Industries, Inc. and American Appliance Mfg. Corp.*, 883 F.2d 1573 (Fed. Cir. 1989) the CAFC found that "[t]here is no rule that a royalty be no higher than the infringer's net profit margin." However, in *State Industries*, the court found that a royalty above Mor-Flo's net profit margin was reasonable, partly in light of "the value of collateral sales" of Mor-Flo's entire line of heaters, suggesting that Mor-Flo might have seen more than just its net profit margin on the accused insulation as at-risk.

[24] *Mars*, 527 F.3d at 1373 and *Monsanto-Ralph* 382 F.3d at 1383.

[25] *Monsanto-Ralph,* 382 F.3d at 1382-1384.

[26] *Monsanto-Ralph,* 382 F.3d at 1384.

Thus, while the CAFC rejected Ralph's argument about a reasonable royalty exceeding the licensee's expected *annual* profits (and its prior agreed-upon licensing arrangement), it has *not* rejected the economic argument that the licensee's *full economic* cost of turning to next-best alternative is, if properly measured, the ceiling for a reasonable royalty.[27] Rather, it has rejected as faulty Ralph's claim that the real-world license was a close-enough comparable to serve as a benchmark for its next-best alternative course of action. Even so, in *Mars*, the court cited *Monsanto-Ralph* and concluded that "an infringer may be liable for damages, including reasonable royalty damages, that exceed the amount that the infringer could have paid to avoid infringement."[28]

From our perspective, the language in *Mars* is somewhat vague. What is "the cost … of implementing… the alternative"? What is "the amount …the infringer could have paid to avoid infringement"? The court does not specify whether that "cost" refers only to the out-of-pocket cost of turning to the alternative, or to the full economic cost of doing so. As we discussed above, this is a *critical* distinction. If the court—and subsequent decisions that might point to *Mars* as precedent—defines cost as only the out-of-pocket costs associated with turning to the alternative, then reasonable royalty awards may properly exceed those costs. But, if the court defines cost as the full economic cost of turning to the alternative and still cites *Mars* to justify an even-higher royalty, then those decisions will directly contradict economic principles and the logic of the hypothetical negotiation we described above.

A fuller reading of the *Mars* case suggests that, despite the CAFC's plain, but strong, language, the district court's ruling (upheld by the CAFC) may *not* have involved a royalty that was higher than the full, economic cost of turning to a non-infringing alternative.[29] In his oral opinion, the district court judge stated that he rejected the plaintiff's expert's royalty because it did not consider the non-infringing alternative. At the same time, however, he was unconvinced as to the evidence put forth by the defense about the extent to which this alternative would have been available and acceptable to consumers who had actually purchased the accused product.[30] Thus, the "cost" of turning to that alternative apparently did not fully account for profits that may have been at risk to the defendant (Coin Acceptors) because that alternative may not have been equally attractive to consumers. It appears, therefore, that the district court judge, in ultimately setting a royalty above the out-of-pocket cost of turning to that alternative, may have been attempting to account for the full *economic* cost of that alternative.

Unfortunately, however, the CAFC's opinion, upholding the district court's royalty, failed to use precise language. If the court meant that the out-of-pocket cost of turning to an alternative may not provide a ceiling for the royalty, then that surely is appropriate. Again, after all, other economic costs may be incurred by the infringer—*e.g.*, including profits foregone because the alternative is not as appealing to customers who had purchased the accused product. On the other hand, if one interprets *Mars* to mean that royalties can exceed even the full economic cost of turning to that alternative, then the decision may lead to royalty awards that are inconsistent with economic principles and, therefore, may overcompensate plaintiffs. The ambiguity in the CAFC's decision, therefore, creates the risk of future citations that get it wrong.

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27 Again, see footnote 8 for a situation in which the royalty may exceed this ceiling.

28 *Mars*, 527 F.3d at 1373.

29 *Mars*, Transcript of Proceedings, Newark, New Jersey, April 20, 2007, pp. 44-5.

30 *Mars*, 527 F.3d at 1373.

Parker-Hannifin & Possible Potholes Along the Road

While the underlying facts of the case are not entirely transparent from the district court's decision, *Parker-Hannifin* illustrates this possible misuse of the *Mars* precedent. The plaintiff (Parker-Hannifin) was originally awarded $86,500, which was the defendant's out-of-pocket cost to develop a non-infringing alternative (and the court's initial ruling explicitly stated that the reasonable royalty could not exceed that amount). Several weeks after this initial ruling, the CAFC's *Mars* decision was published. Referring to this recent precedential decision, plaintiff requested in post-trial briefings that the court reconsider whether reasonable royalties could and should exceed this initial amount. The district court stated:[31]

> In light of this new opinion, the Court finds it is compelled to revisit its earlier determination that the reasonable royalty for the provisional rights period should be capped by the amount the defendant would have spent to design-around plaintiff's patent.

In the end, after reviewing the *Georgia-Pacific* factors, the district court *did* increase the royalty award (to $203,000, about halfway between the plaintiff's number and the defendant's cost of developing the non-infringing alternative).

Is this a case of an upward adjustment to the royalty award that renders the decision at odds with economic logic? The district court judge's reasoning suggests that the answer is a resounding ***no***. In discussing *Georgia-Pacific* factor 8—the established profitability of the product made under the patent—the judge notes that the defendant's expert admitted that the non-infringing alternative is not as profitable as the original, accused product. This suggests that the initially awarded royalty, based on the out-of-pocket cost of developing that alternative, was *below* the full economic cost to the defendant of selling it.[32] In the end, it is not clear how this profit difference contributed to the court's upward adjustment in the awarded royalty. As a result, as an economic matter, the adjustment seems warranted, but *not* because of the imprecise language of *Mars*.

Conclusion

Despite some striking language in *Mars* and what are, in our view, less than precise citations to *Monsanto-Ralph* and *American Seating*, a careful review of these cases permits damages decisions that are consistent with economic logic: reasonable royalties *may* exceed the out-of-pocket cost of turning to available non-infringing alternatives, but *should not* exceed the full economic cost of doing so. Notwithstanding the plain language of those decisions, subsequent courts—including, for example, the district court in *Parker-Hannifin*—should define terminology so that (a) next-best available, non-infringing alternatives include *economic* and not just technical substitutes; and (b) the full economic cost of turning to the next-best alternative *is* a ceiling for reasonable royalty awards. Unless special circumstances apply, any reasonable royalty that exceeds that ceiling should be rejected as economically irrational.[33]

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[31] *Parker-Hannifin*, No. 1:06-CV-2616 at 8.

[32] On the other hand, the district court judge also notes that there was no evidence that the patented features contributed to the product's profitability. Even so, he concluded that this factor would have a positive effect on the royalty rate. [*Parker-Hannifin*, No. 1:06-CV-2616 at 12.]

[33] See, again, footnote 8.

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